Specification for:

ISO Container for Storage of Liquid Oxygen
and
ISO Container for Storage of Liquid Natural Gas

1.0 ISO Container for Storage of Liquid Oxygen

Short Description: 20 Foot, ISO Container for storage of Liquid Oxygen

Detailed Requirements:

- Design Code: The container shall meet DOT 49 CFR regulations, the inner vessel shall meet ASME Boiler Pressure Vessel Code Section VIII, the external piping shall meet ASME B31.3 code. The inner vessel shall be code stamped.
- Capacity: The Gross Water Capacity of the inner vessel shall be a minimum of 5,200 gallons.
- Design Pressure: The Maximum Allowable Working Pressure (MAWP), as defined by ASME Code, of the inner pressure vessel shall be a minimum of 180 psig. The design pressure shall be limited by the shell or head, not by minor parts.
- Service Temperature: The service temperature (Coincident metal temperature) as defined in Section VIII of the ASME Code shall be -320 to +100 degrees F.
- Inner Vessel Material: Stainless steel
- Outer Vessel Material: Carbon steel
- External Piping Material: Stainless steel
- Internal Geometry: The inner vessel shall have a minimum of two (2) transverse baffles
- Connections: Fill/Withdrawal connection shall be on side of container.
- Pressure Build Coil: The container shall be capable of sustaining a minimum liquid withdraw rate of 55 gpm at 100 psig using an on-board pressure building vaporizer. The pressure build system shall have a pressure build regulator with a remote operated isolation valve.
- Insulation: Vacuum jacketed with multi-layer super insulation
- Net Evaporation Rate: > 0.3% in LO2 per 24 hours (ambient conditions: 14.7 psia, 59 F)
- Instrumentation: The container shall have a liquid level gauge and vessel pressure gauge with an analog output signal.
- Cleanliness: The inner vessel shall be cleaned to level 300A for oxygen service.
- Design Calculations: The pressure vessel shall be designed and constructed such that it meets the requirements of the ASME Boiler and Pressure Vessel Code. ASME documentation shall be delivered with the containers and shall contain the following: certified fabrication drawings or as built drawings; design calculations; Data reports - ASME Forms (U-1, U-1A, U-2, U-2A, U-3, U-4, A-1, A-2, A-3 as applicable); inspection, examination and test records; material thickness (head, shell, etc.); corrosion allowance (if any) and facsimile of nameplate stamping.
- Support stands capable of supporting a full container a minimum of 12” above the ground.

2.0 ISO Container for Storage of Liquid Natural Gas

Short Description: 40 Foot, ISO Container for storage of Liquid Natural Gas.

Detailed Requirements:

- Design Code: The container shall meet DOT 49 CFR regulations, the inner vessel shall meet ASME Boiler Pressure Vessel Code Section VIII, the external piping shall meet ASME B31.3 code. The inner vessel shall be code stamped.
- Capacity: The Gross Water Capacity of the inner vessel shall be a minimum of 11,400 gallons.
- Design Pressure: The Maximum Allowable Working Pressure (MAWP), as defined by ASME Code, of the inner pressure vessel shall be a minimum of 100 psig. The design pressure shall be limited by the shell or head, not by minor parts.
- Service Temperature: The service temperature (Coincident metal temperature) as defined in Section VIII of the ASME Code shall be -320 to +100 degrees F.
- Inner Vessel Material: Stainless steel
- Outer Vessel Material: Carbon steel
- External Piping Material: Stainless steel
- Internal Geometry: The inner vessel shall have a minimum of four (4) transverse baffles
- Connections: Fill/Withdrawal connection shall be on side of container.
- Pressure Build Coil: The container shall be capable of sustaining a minimum liquid withdraw rate of 100 gpm (LNG) at 100 psig using an on-board pressure building vaporizer. The pressure build system shall have a pressure build regulator with a remote operated isolation valve.
- Insulation: Vacuum jacketed with multi-layer super insulation
- Net Evaporation Rate: > 0.2% in LNG per 24 hours (ambient conditions: 14.7 psia, 59 F)
- Instrumentation: The container shall have a liquid level gauge and vessel pressure gauge with an analog output signal.
- Cleanliness: The inner vessel shall be cleaned to level 300A for oxygen service.
- Design Calculations: The pressure vessel shall be designed and constructed such that it meets the requirements of the ASME Boiler and Pressure Vessel Code. ASME documentation shall be delivered with the containers and shall contain the following: certified fabrication drawings or as built drawings; design calculations; Data reports - ASME Forms (U-1, U-1A, U-2, U-2A, U-3, U-4, A-1, A-2, A-3 as applicable); inspection, examination and test records; material thickness (head, shell, etc.); corrosion allowance (if any) and facsimile of nameplate stamping.
- Support stands capable of supporting a full container a minimum of 12” above the ground.